

**33521, A NOVEL HUMAN GUANINE NUCLEOTIDE EXCHANGE  
FAMILY MEMBER AND USES THEREOF**

Abstract

The invention provides isolated nucleic acids molecules, designated 33521 nucleic  
5 acid molecules, which encode novel Rho GEF members. The invention also provides  
antisense nucleic acid molecules, recombinant expression vectors containing 33521 nucleic  
acid molecules, host cells into which the expression vectors have been introduced, and  
nonhuman transgenic animals in which a 33521 gene has been introduced or disrupted. The  
invention still further provides isolated 33521 proteins, fusion proteins, antigenic peptides  
10 and anti-33521 antibodies. Diagnostic methods utilizing compositions of the invention are  
also provided.

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